

A New Species of *Diplolepis* from California

(Hymenoptera: Cynipidae)

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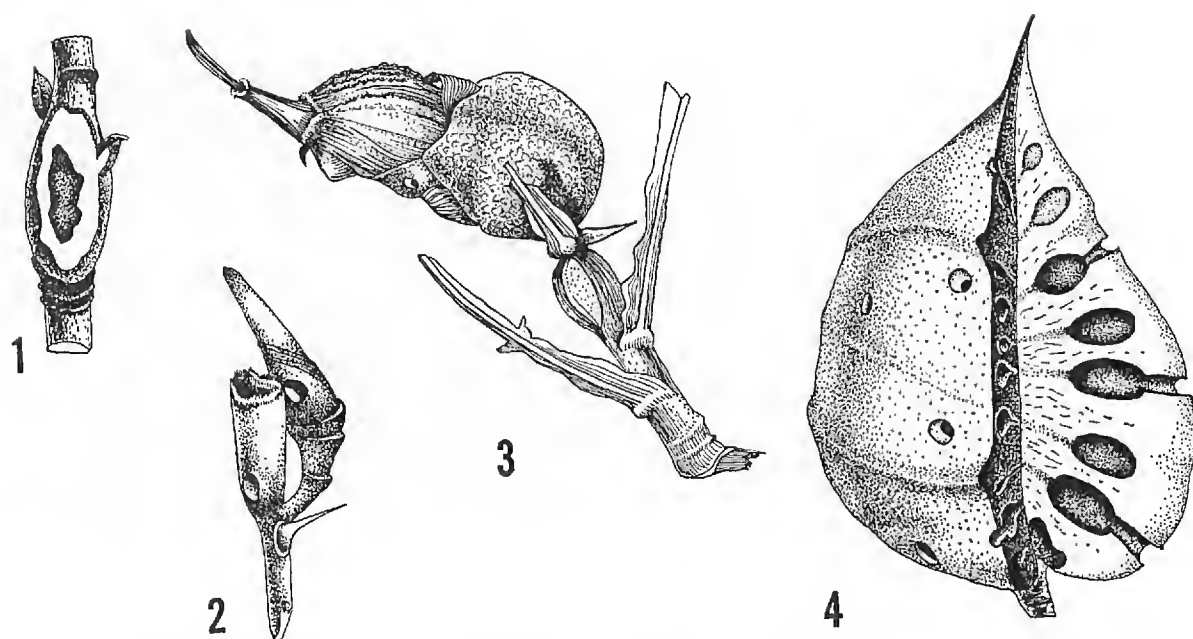
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A previously undescribed cynipid wasp from California, *Diplolepis inconspicuis* n. sp., produces an inconspicuous fusiform twig or bud gall on *Rosa californica* Chambers and Schlecht.

BIOLOGY.—The original gall is an inconspicuous fusiform enlargement of an apical or lateral stem or bud which yields a single adult *D. inconspicuis* in February or March (Figs. 1 & 2). After emerging, the female oviposits in a young stem or bud. If this gall is oviposited in by a female inquiline *Periclistus arefactus* McCracken and Egbert which emerge from old galls in the succeeding months, the new gall and gallmaker fail to develop normally (Fig. 3). The resulting enlarged, tan, woody to pithy, inquiline-modified gall bears lines which are aborted leaf margins and/or abscission scars of aborted leaflets (Fig. 4). It yields only inquilines and parasites. Because the inquiline-modified galls of *D. inconspicuis* closely resemble the normal galls of *D. arefacta* (Gillette) (1894), occurring from Colorado to Nevada, McCracken and Egbert (1922) mistakenly assumed this California gall was produced by *D. arefacta* and named the inquiline *Periclistus arefactus*. Weld's (1957) note on the inquiline-modified galls suggests the original gall was a single celled stem swelling subsequently modified by the inquiline. Our rearings have confirmed this.

***Diplolepis inconspicuis* Dailey and Campbell, new species**

HOLOTYPE FEMALE.—*Head*: Antennae black, 14 segmented; malar space 0.5 times eye height. *Thorax*: Mesoscutum coriaceous, pubescent; median groove smooth, one-third length of mesoscutum at scutellum as distinct and wide as notaulices; notaulices complete, pitted, slightly incurved at scutellum; scutellum entirely rugose, humped above extended curvature of mesoscutum, foveae ridged; mesopleuron with dorsal and ventral polished areas occupying about one-half and one-fourth of mesopleuron respectively, separated by mesolateral rugose area; wings with clouded radial area, radial cell closed, areolet about one-sixth length of cubital cell; cubital cell open proximally. Legs amber, tarsi brown, hind femur tapering suddenly near distal end. *Abdomen*: Propodeum rugose, first abdominal tergite polished coriaceous, sparsely pubescent medially; tergites II–VI progressively more coriaceous, pubescent posteriorly, abdomen equal to combined head and thorax length; hypopygium extending beyond abdomen. *Color*: Head and thorax black, abdomen red. *Length*: 3.9 mm.



FIGS. 1-4. Galls of *Diplolepis inconspicuis* n. sp. FIG. 1. Unaborted dissected stem gall. FIG. 2. Normal but broken stem gall and bud gall. FIG. 3. Immature inquiline aborted bud gall. FIG. 4. Mature inquiline aborted gall which yields *Periclistus arefactus*. All galls are shown twice life size.

Holotype female, and gall, MT. DIABLO, CONTRA COSTA COUNTY, CALIFORNIA C. Dailey #1204, emerged 12 February 1972. Deposited in U. S. National Museum.

Paratype females and galls, Folsom Lake, Placer County (2♀, 6 galls), Mt. Diablo, Contra Costa County, (10♀, 60 galls), Fairfield, Solano County, (4♀, 20 galls), Pleasant Valley, Solano County, (4♀, 29 galls), Marysville, Yuba County, (1♀, 115 galls), Sacramento, Sacramento County, (7♀, 12 galls). All specimens from California. Variation: Abdomen from 1.0 to 1.1 times combined head and thorax length. Length: 3.3 to 4.6 mm. Average of 10 specimens 3.9 mm.

SEX RATIO.—No males have been reared.

Paratype insects and galls are deposited in U. S. National Museum, Washington, D. C., California Academy of Science, San Francisco, California; Weld collection in possession of R. J. Lyon, Los Angeles, California; University of California, Davis; University of Saskatchewan, Saskatoon, Alberta, Canada; and the senior author's collection.

The galls of *D. inconspicuis* and *D. nodulosa* (Beutenmuller) (1909) are often indistinguishable though the latter are occasionally more spiny. The polished dorsal mesopleural area and longer hypopygium of *D. inconspicuis* females readily separate them from females of *D. nodulosa*, which have a small smooth dorsal mesopleural area and hypopygium not extending beyond the last abdominal segment.

ACKNOWLEDGMENTS

The authors are grateful to Mr. J. D. Shorthouse of the University of Saskatchewan for the loan of *D. nodulosa* insects and galls and Barbara Young for the illustrations.

LITERATURE CITED

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BOOK REVIEW

BIOLOGICAL CONTROL. Edited by C. B. Huffaker. Plenum Press, New York. 511 p., 97 figs., 51 tables. 1971. \$19.50.

This book is a collection of papers presented by 33 contributors to a symposium of the Ecological Society of America and the Association for the Advancement of Science in December 1969. Each of the 20 papers is treated as a chapter with its own bibliography. These chapters are arranged in four sections. The book terminates with a complete index to all authors cited in the text of each paper including secondary authors, and a complete subject index.

The first five chapters (Section 1) deal with the theory and evaluation of biological control including: the "Pesticide Syndrome" and its remedy through integrated control; the role of natural enemies in natural control; the adaptability of introduced parasitoids; models, life tables and experimental techniques for evaluating natural enemies.

Chapters 6-10 (Section 2) discuss recent successful examples of biological control of weeds, coccids, greenhouse pests, and the winter moth in Canada. The emphasis is on recent examples so some of the better known examples of weed and pest insect control (e.g. *Opuntia* in Australia, Klamath weed and cottony cushion scale in California) are omitted.

Chapters 11-13 (Section 3) treat examples of naturally-occurring biological control in America north of Mexico, in natural and agricultural ecosystems. The recent appreciation of naturally-occurring biological control is an important development in pest management thinking.

Section 4 (Chapters 14-20) considers the role of biological control in a systems approach to pest control. The majority of these chapters discuss the development of various integrated control programs.

This book is a well balanced treatment of documented examples and the theory of biological control with an emphasis on the role of biological control in integrated control programs. Since integrated control had its inception in California, it is appropriate that about half of the authors are associated with campuses of the University of California. The book is an outstanding reference on the theory and practice of applied ecology in pest management.—ROBBIN W. THORP, *University of California, Davis, 95616*.